

REMARKS

Claims 7, 9, 10, 12, and 15-20 are pending in this application. Claims 1-15 and 21-32 stand rejected and claims 16-20 have been withdrawn from consideration. By this Amendment, claims 7, 9, and 15-20 have been amended and claims 1-6, 8, 11, 13-14, and 21-32 have been canceled without prejudice. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

Claims 1, 2, 21, and 22 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication 2005/0136340 ("Baselmans"). Applicants note that these claims have been canceled thereby rendering this rejection as moot.

Claims 7, 10, 13, 27, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baselmans in view of U.S. Patent No. 5,563,012 ("Neisser"). Applicants respectfully traverse this rejection.

The present claims relate to methods to image grid-placed features onto a wafer wherein the grid has grid pitches smaller than the minimum grid pitch enabled by a single exposure. Among the limitations recited in the pending claims not shown in the prior art is arranging a plurality of assist features on the grid points, grouping a first set of features, grouping a second set of features, creating first and second masks for the first and second features and exposing the two masks sequentially and exposing to image the features onto the wafer.

As set forth in the specification and shown in Figure 1C, the original grid features are separated into two subgroups of features according to the method as

shown in Figure 1C. Using two exposures, the imaging of grid placed features with grid pitches smaller than the single exposure minimum grid pitch in both perpendicular directions is obtained.

Applicants note that Neisser fails to disclose a double-exposure method which can resolve a grid with grid pitches smaller than the minimum pitch in both perpendicular directions. In Neisser, the double-exposure method can only resolve a grid with pitch in only one direction smaller than the minimum grid pitch. Thus, the minimum pitch in both directions minimizes the circuit area, which cannot be done in the prior art.

Claims 3-6 and 23-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Basselmanns in view of U.S. Patent No. 6,114,071 ("Chen"). Applicants note that claims 3-6 and 23-26 are canceled thereby rendering this rejection moot. However, Applicants note that the assist features in Chen must obey the same minimum pitch requirements as real features. That means an assist feature cannot be introduced between two real features if the pitch between the two real features is shorter than two times the minimum pitch. Thus, Chen also fails to disclose the method to resolve features in a grid if the pitch is smaller than the minimum grid pitch. Therefore, the pending claims are all allowable over Chen.

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

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Respectfully submitted,

By

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